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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/005,669	11/02/2001	Jie Yang	57172US002	7579
32692	7590	04/06/2004	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			MAKI, STEVEN D	
			ART UNIT	PAPER NUMBER
			1733	

DATE MAILED: 04/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/005,669

Applicant(s)

YANG ET AL.

Examiner

Steven D. Maki

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-22, 42 and 43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22, 42 and 43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

Art Unit: 1733

- 1) The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- 2) Claims 1-22, 42 and 43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claims 1-22, 42 and 43, it is unclear if an article, a layer per se or an adhesive composition per se is being claimed. The preamble of claim 1 indicates that an adhesive composition per se is being claimed whereas (1) the addition of "the uncured adhesive is provided as a layer of pressure sensitive adhesive" indicates that a layer or an article including the layer *instead of* an adhesive composition per se is being claimed and (2) new claims 42 and 43 (each dependent on claim 1) indicate that an article (e.g. including a layer and an optical element) *instead of* either an adhesive composition per se or a layer per se is being claimed.

- 3) The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

- 4) Claim 43 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Art Unit: 1733

In claim 43, the subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention is "the outgassing layer comprises at least one of polycarbonate and acrylic. Page 17 of the original disclosure describes using a polycarbonate outgassing layer or a polyacrylate outgassing layer instead of "the outgassing layer comprises at least one of polycarbonate and acrylic".

5) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6) Claims 1-3, 8-14, 21-22 and 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Staral et al (US 5897727) and optionally at least one of Kameyama et al (US 6088079) and Japan '994 (Japan 10-120994).

Staral et al discloses a pressure sensitive adhesive comprising:

(1) at least one polymer obtained from the polymerization of at least one free-radically polymerizable monomer such as an acrylic based monomer ("**a polyacrylate component**");

(2) at least one cationically polymerizable monomer such as an epoxy monomer ("**an epoxy component**");

(3) a photo-activatable catalyst system for the cationically polymerizable monomer ("**a cationic initiator**")

Art Unit: 1733

wherein the pressure sensitive adhesive has the combined properties of a pressure sensitive adhesive and a strong, permanent, semi-structural or structural bond. See for example col. 8 lines 59-67, col. 9 lines 1-24, col. 10 lines 3-12, col. 11 line 49-col. 12 line 11, col. 12 line 12-48. The pressure sensitive adhesive can be used to prepare optically useful elements. See col. 1 lines 7-8. The pressure sensitive adhesive can be optically clear. See col. 6 lines 19-22. The pressure sensitive adhesive can crosslink to provide optical properties needed in optical elements. See col. 7 lines 58-60. The crosslinkable component (the epoxy component) imparts little optical haze to the adhesive (before or after curing) so that it may be used in optical systems. See col. 10 lines 9-12. Staral et al is silent as to the properties of luminous transmission being greater than 90%, the haze being less than 2%, and the opacity of the composition being less than 1%.

As to claims 1 and 2, it would have been obvious to provide the polyacrylate component, epoxy component and cationic initiator of Staral et al so as to have the claimed properties "wherein the uncured adhesive is optically clear such that the luminous transmission of the composition is greater than 90%, the haze of the composition is less than 2%, and the opacity of the composition is less than 1%, ... and wherein after aging the cured adhesive at 90oC (or 80oC) for 500 hours the luminous transmission of the cured and aged adhesive is greater than 90%, the haze of the cured and aged adhesive is less than 2%, and the opacity of the cured and aged adhesive is less than 1%" depending on the desired optical properties of the adhesive since

Art Unit: 1733

(a) Staral et al, directed to optical elements, teaches formulating the adhesive for preparing an optical element such that the adhesive is optically clear and has "little optical haze" before or after curing and optionally (b) Kameyama et al, also directed to optical elements, teaches that optical transparency for a pressure sensitive adhesive is obtained by using an acrylic polymer and/or Japan '994, also disclosing a pressure sensitive adhesive comprising a polyacrylate component, an epoxy component and a cationic initiator, teaches that low haze (i.e. less than 15%) of the pressure sensitive adhesive can be obtained by appropriately blending the polyacrylate component and the epoxy component. Hence, Staral et al discloses a layer of pressure sensitive adhesive having all of the claimed components. Furthermore, Staral motivates one of ordinary skill in the art to provide the pressure sensitive adhesive with the claimed optical properties since Staral's teaches *using the pressure sensitive adhesive to bond an optical element*. Staral et al's teaching to use a crosslinkable component (i.e. the epoxy component) such that "little haze" is imparted to the pressure sensitive adhesive before or after curing, the optional teaching in Kameyama et al to obtain optical transparency in a pressure sensitive adhesive by using a polyacrylate component and the optional Japan '994's teaching to lower haze in a pressure sensitive adhesive by using appropriate amounts of polyacrylate component and epoxy component, provide ample guidance as to *how* to obtain the claimed optical clarity. The desirability of optical clarity for a pressure sensitive adhesive is found in Staral et al.

As to the limitation of "wherein the uncured, curable adhesive can be cured to form an adhesive comprising an interpenetrating polymer network", note Staral et al's

Art Unit: 1733

teaching that (1) the pressure sensitive adhesive comprises a polyacrylate component and an epoxy component and (2) the polymers of the crosslinked adhesive "will not separate into optically distorting phases" (col. 6 lines 19-23).

As to the dependent claims: As to claim 3 (single phase), note that the pressure sensitive adhesive is a single composition. As to claims 8-9, see col. 12 lines 13-48. As to claim 10, see col. 11 line 49-col. 12 line 12. As to claims 11-12, see col. 13 line 52+. As to claim 13, see col. 16 line 28+. As to claim 14, see col. 14 line 61 to col. 15 line 7. As to claims 21-22, the claimed amount of epoxy would have been obvious and could be determined without undue experimentation in view of the above noted suggestion and guidance from the above applied prior art to formulate a pressure sensitive adhesive comprising a polyacrylate component and an epoxy component such that the pressure sensitive adhesive has the desired optical properties. As to claim 42, Staral et al teaches using the pressure sensitive adhesive to bond an optical element to another layer (optically transparent electrically conducting film). See col. 6 lines 4-8. As to claim 43, it would have been obvious to provide the pressure sensitive adhesive layer on a polycarbonate layer (an outgassing layer) since Staral et al teaches contacting the adhesive layer with a substrate (col. 6 lines 29-32) and (2) Staral et al's teaching that transparent substrates include polycarbonate substrates (col. 2 lines 23-36).

7) Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Staral et al and optionally at least one of Kameyama et al and Japan '994 as applied above and further in view of Komiya et al (US 6319603).

Art Unit: 1733

As to claims 4-7, it would have been obvious to one of ordinary skill in the art to provide the polyacrylate component in Staral et al's pressure sensitive adhesive such that it reacts with the epoxy component since Komiya et al, also disclosing an adhesive comprising a poly(meth)acrylate polymer, an epoxy component and a cationic initiator, suggests forming the poly(meth)acrylate polymer with a functional group such that a grafting reaction between the poly(meth)acrylate polymer and the epoxy component is obtained and so that the resulting adhesive undergoes the least change in characteristics when exposed to heat and light and maintains its transparency (col. 1 line 65 to col. 2 line 3, col. 3 lines 38-57).

8) Claims 7, 15 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Staral et al and optionally at least one of Kameyama et al and Japan '994 as applied above and further in view of Ha et al (US 6180200).

As to claims 18-20, it would have been obvious to use the claimed multifunctional acrylate or (meth)acrylate in Staral et al's pressure sensitive adhesive composition, since (1) Staral et al teaches that the pressure sensitive adhesive may be applied by any appropriate liquid application method such as screen coating and (b) Ha et al, also directed to a hybrid pressure sensitive adhesive having high optical transparency (col. 6 lines 11-14), suggests using an appropriate acrylate monomer in such a hybrid adhesive to provide the pressure sensitive adhesive with a suitable viscosity for screen printing (column 9).

As to claim 17, it would have been obvious to one of ordinary skill in the art to use an epoxy acrylate compound in Staral et al's pressure sensitive adhesive since Ha



Art Unit: 1733

et al, also directed to a hybrid pressure sensitive adhesive having high optical transparency, suggests using an "epoxy acrylate compound" as an acrylate oligomer in such a hybrid adhesive so that the hybrid PSA forms strong bonds which are stable following exposure to elevated temperature and humidity (see col. 3 lines 52-62, col. 4 lines 1-24, col. 7 lines 5-16).

As to claim 7, note that Ha et al teaches that hybrid free radical and cationic PSA systems allow copolymerization of epoxy moieties with acrylate moieties to form a graft copolymer (col. 4 lines 50-58).

As to claim 15, the claimed grafting agent reads on either the acrylate monomer or the acrylate oligomer suggested by Ha et al.

9) Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Staral et al and optionally at least one of Kameyama et al and Japan '994 in view of Bennett et al (US 5773485).

As to claims 15 and 16, it would have been obvious to include acryloxy benzophenone in the pressure sensitive adhesive composition of Staral et al in view of Bennett et al's teaching to use acryloxybenzophenone to provide adhesive with high shear strength.

#### Remarks

10) Applicant's election of Group I adhesive, claims 1-22 on page 9 of Paper No. 01-15-2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Art Unit: 1733

The 102/103 rejection using Komiya et al has been withdrawn in view of the addition of "the uncured adhesive is provided as a layer of pressure sensitive adhesive" to claim 1.

Applicant's arguments with respect to claims 1-22, 42 and 43 have been considered but are moot in view of the new ground(s) of rejection.

With respect to applicant's arguments regarding pressure sensitive adhesive, Staral et al (applied in the new ground of rejection) discloses a layer of pressure sensitive adhesive.

11) No claim is allowed.

12) Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

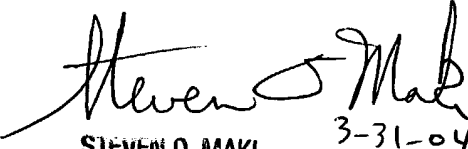
Art Unit: 1733

13) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is (571) 272-1221. The examiner can normally be reached on Mon. - Fri. 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Steven D. Maki  
March 31, 2004

  
STEVEN D. MAKI  
PRIMARY EXAMINER  
~~GROUP 1300~~  
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3-31-04